(d) Identify proposed launch and reentry flight profile(s), including—

(1) Launch and reentry site(s), including planned contingency abort locations, if any;

(2) Flight trajectories, reentry trajectories, associated ground tracks, and instantaneous impact points for nominal operations, and contingency abort profiles, if any;

(3) Sequence of planned events or maneuvers during the mission; and for an orbital mission, the range of intermediate and final orbits of the vehicle and upper stages, if any, and their estimated orbital life times.

§ 431.27 Denial of policy approval.

The FAA notifies an applicant, in writing, if the FAA hasdenied policy approval for an RLV mission license application. The notice states the reasons for the FAA's determination. The applicant may respond to the reasons for the determination and request reconsideration.

§§ 431.28–431.30 [Reserved]

Subpart C—Safety Review and Approval for Launch and Reentry of a Reusable Launch Vehicle

§ 431.31 General.

(a) The FAA conducts a safety review to determine whether an applicant is capable of launching an RLV and payload, if any, from a designated launch site, and reentering the RLV and payload, if any, to a designated reentry site or location, or otherwise landing it on Earth, without jeopardizing public health and safety and the safety of property.

(b) The FAA issues a safety approval to an RLV mission license applicant that satisfies the requirements of this Subpart. The FAA evaluates on an individual basis all public safety aspects of a proposed RLV mission to ensure they are sufficient to support safe conduct of the mission.A safety approval is part of the licensing record on which the FAA's licensing determination is based.

(c) The FAA advises an applicant, in writing, of any issueraised during a safety review that would impede issuance of a safety approval. The applicant may respond, in writing, or revise its license application.

§ 431.33 Safety organization.

(a) An applicant shall maintain a safety organization and document it by identifying lines of communication and approval authority for all mission decisions that may affect public safety. Lines of communication within the applicant's organization, between the applicant and the launch site, and between the applicant and the reentry site,shall be employed to ensure that personnel perform RLV mission operations in accordance with plans and proceduresrequired by this subpart. Approval authority shall beemployed to ensure compliance with terms and conditionsstated in an RLV mission license and with the plans and procedures required by this subpart.

(b) An applicant must designate a person responsible for the conduct of all licensed RLV mission activities.

(c) An applicant shall designate by name, title, and qualifications, a qualified safety official authorized by the applicant to examine all aspects of the applicant's operations with respect to safety of RLV mission activities and to monitor independently compliance by vehicle safety operations personnel with the applicant's safety policies and procedures. The safety official shallreport directly to the person responsible for an applicant's licensed RLV mission activities, who shall ensure that all of the safety official's concerns are addressed both before a mission is initiated and before reentry or descent flight of an RLV is initiated. The safety official is responsible for—

(1) Monitoring and evaluating operational dress rehearsals to ensure they are conducted in accordance with proceduresrequired by § 431.37(a)(4) and under § 431.37(a)(1)(iv) to ensure the readiness of vehiclesafety operations personnel to conduct a safe mission under nominal and non-nominal conditions; and

(2) Completing a mission readiness determination as required by § 431.37 before an RLV mission is initiated. The safety official must monitor and report to the person responsible for the conduct of licensed RLV mission activities

any non-compliance with procedures listed in §§ 431.37 and 431.43, or any representation contained in the application, and the readiness of the licensee to conduct mission operations in accordance with the license and this part. The safety official is responsible for compliance with §§ 431.37 and 431.43, and with representations contained in the application.

§ 431.35 Acceptable reusable launch vehicle mission risk.

(a) To obtain safety approval for an RLV mission, an applicant must demonstrate that the proposed mission does not exceed acceptable risk as defined in this subpart. For purposes of this section, the mission commences upon initiation of the launch phase of flight and consists of launch flight through orbital insertion of an RLV or vehiclestage or flight to outer space, whichever is applicable, and reentry or descent flight, and concludes upon landing on Earth of the RLV.

(b) Acceptable risk for a proposed mission is measured in terms of the expected average number of casualties (E_c).

(1) To obtain safety approval, an applicant shalldemonstrate:

(i) For public risk, the risk level to the collective members of the public exposed to vehicle or vehicle debris impact hazards associated with a proposed mission does notexceed an expected average number of 0.00003 casualties per mission (or E_c criterion of 30×10^{-6}) to members of the public from the applicant's proposed activity; and

(ii) For public risk, the risk level to an individual does not exceed .000001 per mission (or individual risk criterion of 1×10^{-6}).

(2) [Reserved]

(c) To demonstrate compliance with acceptable risk criteria in thissection, an applicant shall employ a system safety process to identify the hazards and assess the risks to publichealth and safety and the safety of property associated with the mission, including nominal and non-nominal operation and flight of the vehicle and payload, if any. An acceptable system safety analysis identifies and assesses the probability and consequences of any reasonably foreseeable hazardous event, and safety-critical system failures during launch flight or reentry that could result in a casualty to the public.

(d) As part of the demonstration required under paragraph (c) of this section, an applicant must—

(1) Identify and describe the structure of the RLV, including physical dimensions and weight;

(2) Identify and describe any hazardous materials, including radioactive materials, and their container on the RLV;

(3) Identify and describe safety-critical systems;

(4) Identify and describe all safety-critical failure modes and their consequences;

(5) Provide drawings and schematics for each safety-critical system identified under paragraph (d) (3) of this section;

(6) Provide a timeline identifying all safety-critical events;

(7) Provide data that validates the applicant's system safety analyses required in paragraph (c) of this section; and

(8) Provide flight trajectory analyses covering launch or ascent of the vehicle through orbital insertion and reentry or descent of the vehicle through landing, including its three-sigma dispersion.

§ 431.37 Mission readiness.

(a) *Mission readiness requirements.* An applicant shall submit the following procedures for verifying mission readiness:

(1) Mission readiness review procedures that involve the applicant's vehicle safety operations personnel, and launch site and reentry site personnel involved in the mission. The procedures shall ensure a mission readiness review is conducted during which the designated individual responsible for the conduct of licensed activities under § 431.33(b) is provided with the following information to make a judgment as to mission readiness—

(i) Readiness of the RLV including safety-critical systems and payload for launch and reentry flight;